

Centrality Index

Synthetic view on place performance through activity patterns

"Location, location, location" is the number one rule in real estate, and often the most underestimated. Big data from connected devices and location-based apps provides insights on status quo and future trends of locations. [\[PropLocation\]](#)

Habidatum has been working to use this data, transformed into synthetic metrics, to inform location-specific decisions in real estate and urban planning. Centrality Index is the first and most important metric of this kind. The article explains it in more detail.

Competitive places within a city

The rapidly changing reality of urban life strongly affects the idea of an *optimal* distribution of functions and services in cities. Businesses or construction sites for new residential or office development are strongly influenced by people's diverse and dynamic lifestyles. For instance, the concept of a *home area* where a person spends a significant amount of time is becoming less common, as travel behaviour shifts from regular commuter trips to more random mobility patterns, and working areas become more distributed around the city. All that leads to complexity in predicting places that concentrate the demand for real estate, infrastructure, jobs and services.

As a result, the idea of a *stable* catchment area, the core of conventional site selection, is losing its relevance for both businesses and real estate developers who do not want to lose time and money targeting the wrong audience.

In the meantime, renovation and revitalization of cities' central districts and peripheral industrial zones reinvent these areas for locating new businesses. Among all, after regeneration they form a new type of retail and recreation experience, creating a strong alternative to shopping malls and downtown retail avenues. The growing trend of co-location (complementary functions located together) add uncertainty to the understanding and management of competition: people stop choosing between brands/shops, and prefer to select between **places**. These places consisting of a set of shops and cafes, architecture, local communities, lifestyles, sentiments and media images **become the main competitors** in the city. To find the right place is not just to determine the point with the least competition and sufficient demand for a certain business type or retail chain. Proper location is about choosing a position that **localizes the maximum set of components** of a "comfortable" place for the target audience.

Understanding of *the nature of places* leads to the possibility to create a fundamentally different way to classify and rank different areas – **city centres** – based on the analysis of the abovementioned components: lifestyles and communities, functional mix and diversity, images and sentiments, etc.

For such an analysis Habidatum developed a Centrality Index that records people's concentrations (of local residents, workers, visitors, irregular users) and the volume and diversity of functions (social and commercial services). The Index is calculated for each area on a regular grid, identifying not only strong, but also developing and emerging centers.

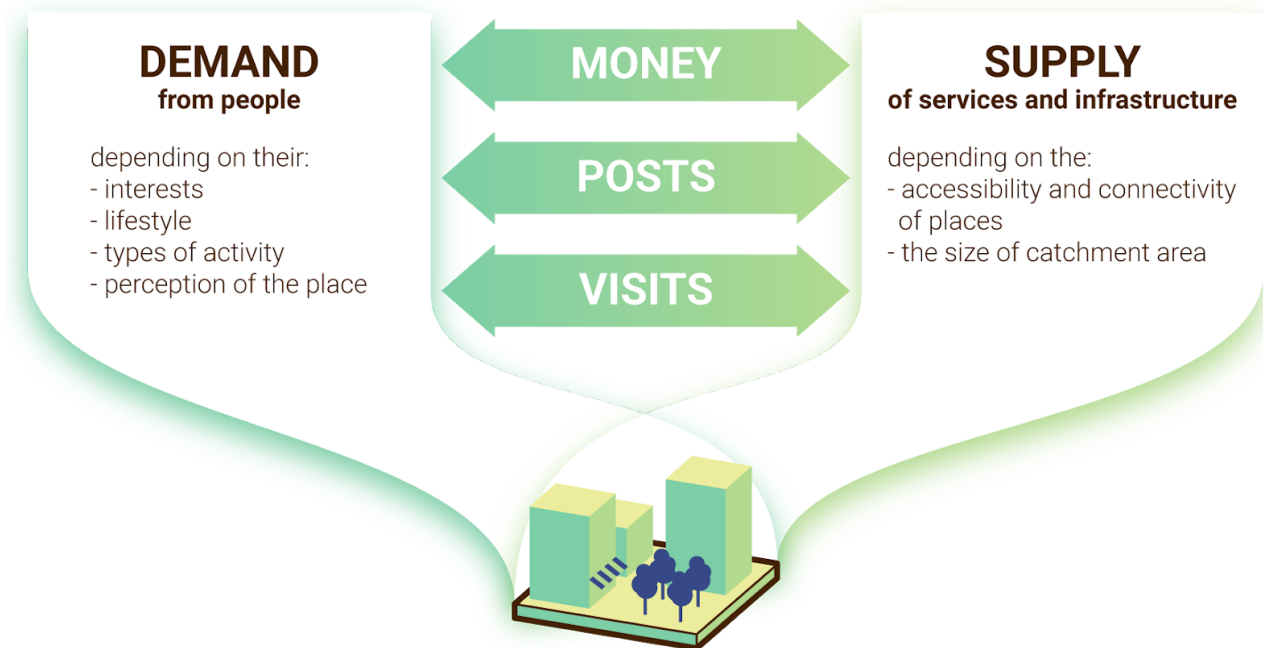


Fig. 1. The multi-layered structure of a place

Besides retail and real estate investment applications, analysing centers of different levels throughout the city and within certain areas allows us to assess the cumulative effect of various development programs, infrastructure projects, landscaping, etc. The distribution of Index values within the city or agglomeration allows us to localize the imbalances and plan the stable spatial structure of centralities.

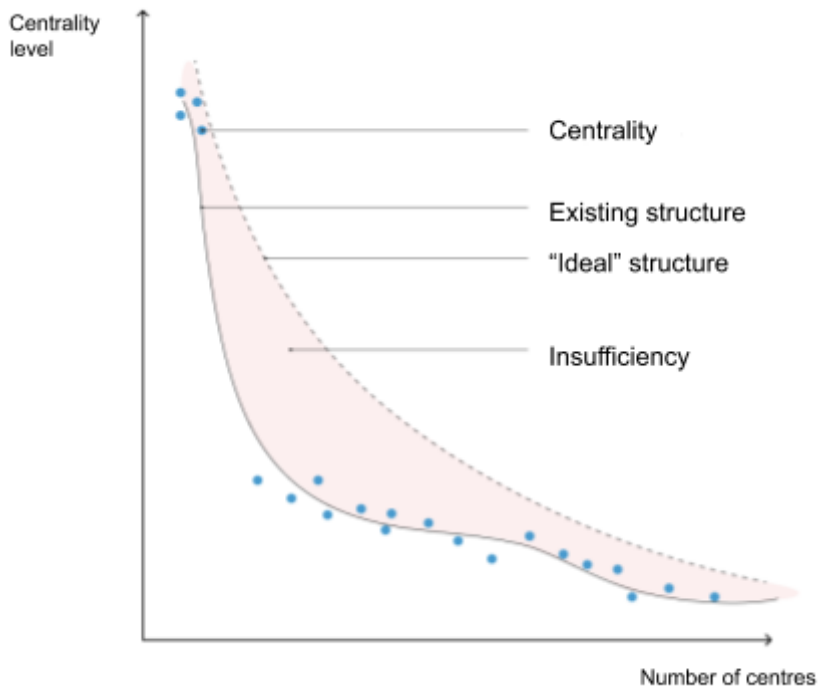


Fig. 2. The construction of the centralities hierarchy

Retail

The core idea for retail-specific site selection utilizing Centrality Index is the possibility to construct a place with a set of optimal combinations of functions satisfying the needs of a target audience. Such combinations are unique for each city / neighborhood, and transform over time with the change of people's habits and tastes.

Various spatial types of city morphology (shopping street vs shopping mall, busy intersection vs quiet boulevard, etc.) usually will have their own unique functional mix – density and diversity of businesses, types of purchases and transaction volumes.

Functional groups by its main location factor

Functional mix related
location is determined by
functional mix in the area

Density related
location is defined by the
optimal/normative service area

Footloose
can locate pretty much
everywhere within city scale



Fig. 3. Functional mix matrix example. The example of community-driven retail profiling for [Brainport Smart District](#)

Depending on their characteristics, places are clustered into centres of different levels. Most often, same spatial structures form centres of one level – a busy central retail street will be different from a shopping mall, but transitions are possible. Growth or decline may be an effect of both internal and external factors that are as well predicted as controlled and managed.

Development

For real estate developers, the *value* of a place is determined not only by price-forming factors localized in the neighborhood, but also by the amount and *variety of urban values available* for comfortable use, such as places of employment, leisure, commercial and recreational spaces etc.

In such a system, the distance to and the accessibility of city centres of various types increase the value / pricing of a place and its importance in the existing centralities' structure.

Analyzing accessible centers is an important addition to the more traditional site and neighborhood, pricing and competition assessment. It is focused on dynamic processes, not just status quo, as accessibility is influenced by dynamic mobility, and centers are formed by people and business activity, changing by hours, days of the week and seasons. It sees the property as a part of local community's lifestyle, where the connections

